

will not provide significant benefits to third parties because of the limitations inherent in the service creation parameters established by the LECs.¹⁰⁸⁷

474. Several parties argue that incumbent LEC SCP databases and AIN triggers in the incumbent LEC switch should be unbundled for a requesting carrier.¹⁰⁸⁸ Most incumbent LECs argue that sufficient mediation needs to be developed and implemented before any third party interconnection to AIN will be technically feasible.¹⁰⁸⁹ Some parties, however, counter that there is sufficient screening in the STP and that incumbent LECs should be required to accept AIN signaling messages from competitors' AIN SCP databases without additional mediation.¹⁰⁹⁰ AT&T argues that the refusal to carry AIN messages prevents competitive carriers from offering the same advanced AIN and CLASS services as the incumbent.¹⁰⁹¹ AT&T further contends that mediation will not be necessary, because just as carriers are certified before interconnecting with other carriers' SS7 networks, carriers can be certified for AIN.¹⁰⁹² Some competitors argue that a short transitional period of mediated access could be established to allow time for the adoption of standards to ensure network integrity, but only if incumbent LECs were required to use the same mediated access.¹⁰⁹³

475. A few parties, including AT&T and MCI, propose unbundling of AIN in order to allow competing carriers to interconnect their own SCP database to the incumbent LECs' AIN so that competing carriers could provide call processing instructions to the incumbent LEC's switch

¹⁰⁸⁷ AT&T comments in CC Docket No. 91-346 at 5-11 (competitors would be restricted to the particular LEC's AIN architecture and software platform, preventing the creation and deployment of unique AIN services); ALLNET comments in CC Docket No. 91-346 at 2; Ad Hoc Telecommunications Users Committee comments in CC Docket No. 91-346 at 8-9.

¹⁰⁸⁸ Ad Hoc Telecommunications Users Committee comments at 17; GCI at 12; Louisiana Commission at 5; LCI comments at 18.

¹⁰⁸⁹ BellSouth comments at 47. Mediation refers to additional screening software or devices to prevent incorrect or unacceptable AIN messages from reaching the switch or SCP database. *Id.*

¹⁰⁹⁰ ACTA comments at 21 (mediation devices will increase post dial delay and significantly increase competitors costs); CompTel comments at 45 (since section 251 unbundling is limited to telecommunications carriers, who already adhere to network security and integrity requirements as well as rigorous testing procedures, there is no need for mediation for access to AIN elements).

¹⁰⁹¹ AT&T reply at 20 (arguing that such a refusal violates the requirement of section 251(c)(2) for interconnection on "just, reasonable and nondiscriminatory" terms).

¹⁰⁹² See Letter in CC Docket No. 91-346 from Bruce Cox, Government Affairs Director, AT&T, to William F. Caton, Acting Secretary, FCC, Aug. 21, 1995 (*AT&T Intelligent Networks Proposal*) Attachment at 2; but see PacTel reply at 22 (certification would not prevent competitors from sending erroneous messages to an incumbent LEC's AIN SCP which could lead to unauthorized changes in a customer's service or PIC).

¹⁰⁹³ Cable & Wireless comments at 25; MCI comments at 36; ACSI comments at 44.

for calls to or from its own customers.¹⁰⁹⁴ AT&T argues that this would allow it to offer different services to the customer than does the incumbent LEC, which would increase competition in the local exchange market.¹⁰⁹⁵ Ericsson admits that this is "an attractive concept which might increase competition" but argues that there are numerous technical issues that must be resolved, including billing and service interaction issues.¹⁰⁹⁶ Incumbent LECs, manufacturers and other parties argue that it is not technically feasible for a competing provider to connect its own alternative call processing database to the incumbent LEC signaling network.¹⁰⁹⁷ Many parties, including virtually all incumbent LECs, argue against allowing a competing carrier or reseller to connect its own alternative call processing database directly to the incumbent LEC's SS7 network because of the network reliability and security issues it creates.¹⁰⁹⁸ These parties warn that requiring such unbundled access to AIN could make an incumbent LEC's switch vulnerable to inappropriate routing and billing instructions from the competitor's SCP.¹⁰⁹⁹ BellSouth argues that the *Intelligent Networks* docket supports a finding that this type of AIN unbundling is not technically feasible.¹¹⁰⁰ Sprint contends that it could not forecast capacity needs for a competing

¹⁰⁹⁴ ACTA comments at 21; AT&T comments at 23-25; Cable & Wireless comments at 24; MCI comments at 18, 33 (arguing that such interconnection is supported by the findings of the Information Industry Liaison Committee (IILC) Issue #026 Task Force on Long Term Unbundling); CompTel comments at 44; AT&T reply at 19-20.

¹⁰⁹⁵ AT&T comments at 23-25. AT&T admits that this arrangement would require carriers to agree upon an expanded signaling message set for AIN call processing, but it argues that such messages are already defined by Bellcore and it is the refusal of incumbent LECs' to accept them that prevents its deployment. *Id.*

¹⁰⁹⁶ Ericsson comments at 6.

¹⁰⁹⁷ Sprint comments at 41 (there are significant network reliability issues involved with introducing a third party database to an SS7 network); BellSouth comments at 46 (before interconnection of a third-party database to an incumbent LEC's signaling system, more development is still needed for routing, protocol screening, call gapping, resource contention, overload control, feature interaction management and billing concerns for such an arrangement); Ericsson comments at 6 (interconnection of a third-party database to an incumbent LEC's signaling system might promote competition but there are complex technical issues to address before such a scheme could become technically feasible); Teleport comments at 37-38.

¹⁰⁹⁸ BellSouth comments at 45-46 (introduction of a third-party database to an incumbent LEC's signaling system creates the potential for fraud, sabotage, and slamming of the incumbent LEC's customers); SBC comments at 45 (record in CC Docket No. 91-346 is replete with evidence demonstrating the current technical infeasibility of interconnection of third-party databases to an incumbent LEC's signaling system); Sprint comments at 41 (cannot test for system validation and feature interaction); Teleport comments at 37-38; GVNW comments at 30-31 (such interconnection must be mediated to protect both networks from potential harm from incorrect SS7 messages).

¹⁰⁹⁹ BellSouth comments at 46; Ericsson comments at 6; TCG comments at 37-38; GTE reply at 21-22 (third-party access to AIN triggers not technically feasible without mediation because of network reliability and service integrity issues); Teleport comments at 37-38; *but see* Cable & Wireless comments at 24 (incumbent LEC arguments concerning network integrity are analogous to AT&T arguments in *Carterfone* that non-Bell System equipment could cause malfunctions in the network).

¹¹⁰⁰ BellSouth comments at 45-46 (areas still needing resolution include routing, protocol screening, call gapping, resource contention, overload control, feature interaction management, and billing). *See also* Letter in CC Docket No. 91-346 from Karen Weis, Division Manager, AT&T, and Ben G. Almond, Executive Director, Federal Regulatory, BellSouth, to William F. Caton, Acting Secretary, FCC, Dec. 14, 1995 (*AT&T-BellSouth Intelligent Networks Joint Report*). The *AT&T-Bell South Intelligent Networks Joint Report* detailed the results of their

carrier's alternative database in order to identify its own network capacity requirements.¹¹⁰¹ GVNW adds that any national rule requiring such a form of interconnection would require many small incumbent LECs to make uneconomic upgrades of their switches in order to accommodate it.¹¹⁰²

476. Many parties contend that further testing of AIN is needed before further access and interconnection between carriers can be considered technically feasible.¹¹⁰³ Most of the BOCs support a two year testing plan for the industry to further investigate issues relating to AIN before moving forward to third party interconnection.¹¹⁰⁴ Several parties, however, urge the Commission to reject the LECs' proposed *Intelligent Networks* testing plan, argue that it is not necessary to ensure network integrity and that it is inconsistent with the 1996 Act.¹¹⁰⁵ Parties opposed to the LECs' testing plan assert that it is vague and revisits work that has already been done in existing industry fora.¹¹⁰⁶ Supporters of the LECs' testing plan, however, counter that they are willing to consider working within existing industry fora.¹¹⁰⁷ As described in the *Intelligent Networks* docket, the LEC testing plan will take place over a two year period with final recommendations to be decided by the participants themselves. Some competitors, while

laboratory-to-laboratory test concerning the interconnection of an AT&T SCP to BellSouth's SSP. *Id.*

¹¹⁰¹ Sprint comments at 41.

¹¹⁰² GVNW comments at 30-31.

¹¹⁰³ Bell Atlantic comments at 29 n.10; BellSouth comments at 47; Ericsson comments at 6-7; GTE comments at 42; GVNW comments at 32; Lincoln Tel. comments at 10; SBC comments at 46; U S West comments at 58.

¹¹⁰⁴ Bell Atlantic comments at 29 n.10; BellSouth comments at 47; GTE comments at 42; Lincoln Tel. comments at 10; SBC comments at 44 (Commission should issue order in CC Docket No. 91-346 that endorses the Tier 1 LECs' joint proposal for an industry IN project); U S West comments at 58 (industry testing plan will lead to development of non-proprietary AIN interfaces). See Letter in CC Docket No. 91-346 from Sandra Wagner, Director, Federal Regulatory, SBC Communications, Inc., to William F. Caton, Acting Secretary, FCC, June 23, 1995 (*LEC Intelligent Networks Proposal*). Active participants in the LEC Proposal are Bell Atlantic, GTE, PacTel, SBC and U S West. Other incumbent LECs supporting the LEC Proposal, but not currently "active" include BellSouth, Lincoln Tel., SNET, and Sprint.

¹¹⁰⁵ Cable & Wireless comments at 26; MCI comments at 36-37. See also AT&T update comments in Docket 91-346 at 5-6.

¹¹⁰⁶ MCI comments at 36-37; but see GTE reply at 22 (testing is necessary and is not intended for delay).

¹¹⁰⁷ Letter in CC Docket No. 91-346 from Sandra Wagner, Director, Federal Regulatory, SBC Communications, to William Caton, Acting Secretary, FCC, May 22, 1996 (SBC May 22 *Intelligent Networks Ex Parte*). SBC contends that the Joint LEC project proposed creating a new forum directly in response to MCI's prior assertions that ATIS sponsored forums were ineffective in addressing interconnection issues. *Id.* at 4-5.

allowing for the need for further testing, advocate imposing a mandatory time limit on the resolution of the outstanding mediation issues for unbundled access to AIN.¹¹⁰⁸

477. Some commenters believe that a Commission order to unbundle AIN functionalities would satisfy the objectives of the *Intelligent Networks* proceeding.¹¹⁰⁹ AT&T asserts that, if unbundled signaling explicitly includes the exchange of AIN signaling messages between incumbent LEC switches and competitor's SCPs, then the Commission does not need to pursue CC Docket No. 91-346 further because its objectives will be met in this proceeding.¹¹¹⁰ SBC, however, urges the Commission not to merge the *Intelligent Networks* proceeding into this docket.¹¹¹¹

c. Discussion

478. In the interconnection section above, we conclude that the exchange of signaling information between LECs necessary to exchange traffic and access call related databases was included within the interconnection obligation of section 251(c)(2).¹¹¹² Thus, notwithstanding any obligations under section 251(c)(3), incumbent LECs are required to accept and provide signaling in accordance with the exchange of traffic between interconnecting networks. We conclude that this exchange of signaling information may occur through an STP-to-STP interconnection.

(1) Signaling Links and STP

479. We conclude that incumbent LECs, upon request, must provide nondiscriminatory access to their signaling links and STPs on an unbundled basis. We believe it is technically feasible for incumbent LECs to provide such access, and that such access is critical to entry in the local exchange market. Further, the 1996 Act requires BOCs to provide "nondiscriminatory access to databases and associated signaling necessary for call routing and completion" as a

¹¹⁰⁸ Cable & Wireless comments at 25; MCI comments at 36 (advocating that the Commission refer outstanding issues from the IILC Issue #026 consensus document to an established forum and that it should monitor progress to ensure implementation of access to the remaining interface points is accomplished within six months of the end of an initial negotiation or arbitration process).

¹¹⁰⁹ AT&T comments at 25 n.29; Cable & Wireless comments at 26.

¹¹¹⁰ AT&T comments at 25 n.29.

¹¹¹¹ SBC comments at 46 (arguing that record in CC Docket No. 91-346 is already complete).

¹¹¹² See *supra*, Section IV. We emphasize, in Section V.J.4.c.(4), such exchange of signaling information does not include the exchange of AIN signaling information between networks for the purpose of providing AIN messages to the incumbent LEC's switch from a competitor's SCP database.

precondition for entry into in-region interLATA services.¹¹¹³ Thus, it appears that Congress contemplated the unbundling of signaling systems as network elements.

480. We conclude that access to unbundled signaling links and STPs is technically feasible.¹¹¹⁴ The majority of commenters, including incumbent LECs, agree that it is technically feasible to provide unbundled access to signaling links and STPs.¹¹¹⁵ Parties note that incumbent LECs and signaling aggregators already provide such access.¹¹¹⁶ In addition, several state commissions already require incumbent LECs to provide unbundled elements of SS7 networks.¹¹¹⁷ Because of the screening role played by the STP and associated network reliability concerns that were raised in the record, however, we do not require that incumbent LECs permit requesting carriers to link their own STPs directly to the incumbent's switch or call-related databases.¹¹¹⁸ We take a deliberately conservative approach here because of significant evidence in the record and we note that mere conclusory objections to technical feasibility would not alone be sufficient evidence.

481. Under section 251(d)(2)(A), the Commission must consider whether access to proprietary network elements is necessary.¹¹¹⁹ Commenters did not identify proprietary concerns with signaling protocols for the SS7 network.¹¹²⁰ Moreover, in general, SS7 signaling networks adhere to Bellcore standards, rather than LEC-specific protocols and provide seamless

¹¹¹³ 47 U.S.C. § 271(c)(2)(B)(x). See also statement of Sen. Pressler, noting that "access to signaling and databases [is] important if you are going to compete and get into the market." 141 Cong. Rec. S8163 (June 12, 1995).

¹¹¹⁴ As discussed *infra*, we conclude that it is not technically feasible to unbundle the SCP from its associated STP, therefore, we do not require incumbent LECs to unbundle those signaling links connecting SCPs to STPs. We emphasize that we take this conservative course here because of the real evidence in the record and note that mere conclusory objections to technical feasibility will not be considered sufficient evidence of such.

¹¹¹⁵ See, e.g., AT&T comments at 23; TIA comments at 14; U S West comments at 48; PacTel reply at 21-22.

¹¹¹⁶ See, e.g., BellSouth comments at 43; GVNW comments at 29; NYNEX comments at 71; USTN reply at 1.

¹¹¹⁷ See, e.g., Colorado Commission comments at 24; Michigan Commission comments at 12; Texas Commission comments at 19.

¹¹¹⁸ See, e.g., Ameritech comments at 50; Bell Atlantic comments at 27; MCI comments at 34-35; Sprint comments at 40. We note, however, that we do not preempt those state commissions that have required incumbent LECs to do so. See *Illinois Wholesale Order*.

¹¹¹⁹ 47 U.S.C. § 251(d)(2)(A).

¹¹²⁰ AT&T argues that there are no proprietary information issues because signaling information is generated in the incumbent LEC's switch and is provisioned entirely by the incumbent LEC. AT&T comments at 26.

interconnectivity between networks.¹¹²¹ Thus, we conclude that the unbundling of signaling links and STPs does not present proprietary concerns with respect to the incumbent LEC.

482. Under section 251(d)(2)(B), the Commission must consider whether "the failure to provide access to such network elements would impair the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer."¹¹²² Access to signaling systems continues to be a critical element to providing competing local exchange and exchange access service. The vast majority of calls made over incumbent LEC networks are set-up and controlled by separate signaling networks. Incumbent LECs argue that access to signaling systems and associated databases is already available from other providers and therefore, they should not have to unbundle them for access by competitors.¹¹²³ As discussed above, section 251(d)(2)(B) only relieves an incumbent LEC of its unbundling obligation if other unbundled elements in its network could provide the same service without diminution of quality. Because alternative signaling methods, such as in-band signaling, would provide a lower quality of service,¹¹²⁴ we conclude that a competitor's ability to provide service would be significantly impaired if it did not have access to incumbent LECs' unbundled signaling links and STPs.

483. The purchase of unbundled elements of the SS7 network gives the competitive provider the right to use those elements for signaling between its switches (including unbundled switching elements), between its switches and the incumbent LEC's switches, and between its switches and those third party networks with which the incumbent LEC's SS7 network is interconnected. When a competitive provider purchases unbundled switching from the incumbent LEC, the incumbent LEC must provide nondiscriminatory access to its SS7 network from that switch in the same manner in which it obtains such access itself. Carriers that provide their own switching facilities should be able to access the incumbent LEC's SS7 network for each

¹¹²¹ A few commenters urge that we prohibit incumbent LECs from taking a proprietary interest in signaling protocols. These parties argue that such a proprietary interest conflicts with the continuing necessity for open access to signaling protocols to maintain the seamless nationwide "network of networks." See Frontier comments at 16 n.31; Wyoming Commission comments at 24.

¹¹²² 47 U.S.C. § 251(d)(2)(B).

¹¹²³ See, e.g., Bell Atlantic comments at 27-28; BellSouth comments at 44; GTE comments at 40-41; NYNEX comments at 71.

¹¹²⁴ SS7 network signaling is critical in the provision of modern telecommunications services, allowing signaling messages to travel separately from the voice path for individual calls, increasing efficiency and making possible a host of new signaling-based services. AT&T comments at 23. Popular features like Calling Number Identification (Caller ID) and Calling Name Identification, as well as enhanced call set-up functions and such Custom Calling features as Repeat Call and Return Call, would be unavailable without SS7 capabilities. Bell Atlantic comments at Attachment 3, 17.

of their switches via a signaling link between their switch and an incumbent LEC's STP.¹¹²⁵ Competitive carriers should be able to make this connection in the same manner as an incumbent LEC connects one of its own switches to the STP. This could be accomplished by the incumbent providing an unbundled signaling link from its STP to the competitor's switch or by a competitor bringing a signaling link from its switch to the incumbent LEC's STP.

(2) Call-Related Databases

484. We conclude that incumbent LECs, upon request, must provide nondiscriminatory access on an unbundled basis to their call-related databases¹¹²⁶ for the purpose of switch query and database response through the SS7 network.¹¹²⁷ Thus, for example, we find that it is technically feasible for incumbent LECs to provide access to the Line Information Database (LIDB), the Toll Free Calling Database and Number Portability downstream databases.¹¹²⁸ The vast majority of parties, including incumbent LECs, agree that it is technically feasible to provide access to the LIDB and the Toll Free Calling databases at an STP linked to the database.¹¹²⁹ Several state commissions also report that they have ordered incumbent LECs to provide such access to the LIDB and the Toll Free Calling databases.¹¹³⁰ We require incumbent LECs to provide this access to their call-related databases by means of physical access at the STP linked

¹¹²⁵ Competitors should be able to interconnect their own switches to the incumbent LEC's signaling system in any technically feasible manner. Competitors may bring a signaling "A" link from their switch to the incumbent LEC's STP. CAPs use this type of connection today to connect their tandem switches to incumbent LECs' STPs. AT&T comments at 24 n.26. Competitors might also link their switch to their own STP, and then connect to an incumbent LEC's STP via a signaling "D" or "B" link.

¹¹²⁶ Call-related databases are those SS7 databases used for billing and collection or used in the transmission, routing, or other provision of a telecommunications service.

¹¹²⁷ Query and response access to a call-related database is intended to require the incumbent LEC only to provide access to its call-related databases as is necessary to permit a competing provider's switch (including the use of unbundled switching) to access the call-related database functions supported by that database. The incumbent LEC may mediate or restrict access to that necessary for the competing provider to provide such services as are supported by the database.

¹¹²⁸ AT&T indicates that for LIDB and 800/888 database queries standard TCAP messages have been established, and reliability, security, provisioning, and billing issues have been addressed. Letter from Karen Weis, Division Manager, AT&T to William Caton, Acting Secretary, FCC, July 16, 1996 (AT&T July 16 *Ex Parte*). Bell Atlantic states that it currently provides interconnection for LIDB and 800 databases. Bell Atlantic comments at 2. Number portability "downstream databases" are defined in Part 51 of our rules as adopted by this Order. *See In the Matter of Telephone Number Portability*, First Report and Order and Further Notice of Proposed Rulemaking, CC Docket No. 95-116, FCC 96-286 (rel. July 2, 1996).

¹¹²⁹ *See, e.g.*, Ameritech comments at 47; AT&T comments at 24; ALTS comments at 31; GTE comments at 40; MCI comments at 34-35; NYNEX comments at 71; U S West comments at 48.

¹¹³⁰ Louisiana Commission comments at 5; Michigan Commission comments at 12; PacTel comments at Appendix A, 7 (California Commission has required such access).

to the unbundled database. We find that such access is critical to entry in the local exchange market.

485. We conclude that it is not technically feasible to unbundle the SCP from its associated STP. We note that the overwhelming majority of commenters contend that it is not technically feasible to access call-related databases in a manner other than by connection at the STP directly linked to the call-related database.¹¹³¹ Parties argue that the STP is designed to provide mediation and screening functions for the SS7 network that are not performed at the switch or database.¹¹³² We, therefore, emphasize that access to call-related databases must be provided through interconnection at the STP and that we do not require direct access to call-related databases.

486. Several commenters also identified access to call-related databases used in the incumbent's AIN to be critical to fair competition in the local market,¹¹³³ and some state commissions have ordered incumbent LECs to provide access to AIN databases.¹¹³⁴ We conclude that such access is technically feasible via an STP for those call-related databases used in the incumbent LEC's AIN.¹¹³⁵ First, of course, when a new entrant purchases an incumbent's local switching element it is technically feasible for the new entrant to use the incumbent's SCP element in the same manner, and via the same signaling links, as the incumbent itself. Thus, we find no technical impediments in the record with regard to such access when a requesting carrier is also purchasing a local switching element associated with the AIN call-related database.

487. Further, we conclude that when a new entrant deploys its own switch, and links it to the incumbent LEC's signaling system, it is technically feasible for the incumbent to provide access to the incumbent's SCP to provide AIN-supported services to customers served by the new entrant's switch. Some SS7 network services resellers currently provide such access.¹¹³⁶ Other potential local competitors present additional evidence supporting the technical feasibility

¹¹³¹ See, e.g., Sprint comments at 40; AT&T reply at 19-20 n.32.

¹¹³² See, e.g., GTE comments at 40; USTA comments at 36.

¹¹³³ Cable & Wireless comments at 24; Citizens Utilities comments at 15; MCI comments at 32-33; TIA comments at 14; CompTel comments at 43; AT&T comments at 23-26.

¹¹³⁴ Louisiana Commission comments at 5; Wyoming Commission comments at 23-24; *see also Illinois Wholesale Order*.

¹¹³⁵ AT&T comments at 23-26; CompTel comments at 43; MCI comments at 36; Letter from Wendy Blueming, Regulatory Affairs and Public Policy, SNET to William Caton, Acting Secretary, FCC, July 23, 1996 (SNET July 23 *Ex Parte*); AT&T July 16 *Ex Parte*.

¹¹³⁶ SNET July 23 *Ex Parte*; Letter from Stephen Kraskin, Illuminet (USTN) to Office of the Secretary, FCC July 23, 1996 (USTN July 23 *Ex Parte*).

of such access.¹¹³⁷ Unlike the situation where a competitor's SCP would control the incumbent's switch (which is discussed below in section V.I.4.c.(4)), in this scenario, the incumbent's SCP will respond to and control the competitor's switch, and potential competitors that have commented in the record do not express network reliability concerns with regard to such control.¹¹³⁸ Further, like the software resident in a switch, the incumbent LEC's applications resident in an SCP are merely part of the overall software and hardware making up the SCP facility. Thus, carriers purchasing access under either scenario above may use the incumbent's service applications in addition to their own.¹¹³⁹

488. Although we conclude that access to incumbent AIN SCPs is technically feasible, we agree with BellSouth that such access may present the need for mediation mechanisms to, among other things, protect data in incumbent AIN SCPs and ensure against excessive traffic volumes.¹¹⁴⁰ In addition, there may be mediation issues a competing carrier will need to address before requesting such access.¹¹⁴¹ Accordingly, if parties are unable to agree to appropriate mediation mechanisms through negotiations, we conclude that during arbitration of such issues the states (or the Commission acting pursuant to section 252(e)(5)) must consider whether such mediation mechanisms will be available and will adequately protect against intentional or unintentional misuse of the incumbent's AIN facilities. We encourage incumbent LECs and competitive carriers to participate in industry fora and industry testing to resolve outstanding

¹¹³⁷ See AT&T July 16 *Ex Parte*; see also AT&T comments at 23-26; CompTel comments at 43; MCI comments at 36.

¹¹³⁸ See AT&T July 16 *Ex Parte*. AT&T asserts that no additional or unique reliability problems would be created that have not already been addressed and resolved by those incumbent LECs who have proposed SMS access for third parties in the Intelligent Networks proceeding. *Id.*

¹¹³⁹ See *infra*, Section V.I.4.c.(3) on unbundled access to the incumbent LEC's SCE and SMS.

¹¹⁴⁰ Letter from W.W. Jordan, Executive Director - Federal Regulatory, BellSouth to William Caton, Acting Secretary, FCC, July 16, 1996 (BellSouth July 16 *Ex Parte*) ("With a BellSouth SCP to a ALEC SSP [switch] interconnection arrangement, network reliability and security concerns, from BellSouth's perspective, would largely be limited to issues associated with traffic management."); Letter from James Smith, Director-Federal Relations, Ameritech to William Caton, Acting Secretary, FCC, July 17, 1996 (Ameritech July 17 *Ex Parte*) ("The volume of queries sent from the CLEC SSP [switch] could overload the LEC SCP, interfering with the operation of the service provided to that CLEC, or with other services which may operate on the LEC's SCP."); Letter from Joseph Mulieri, Director-FCC Relations, Bell Atlantic to Robert S. Tanner, Attorney Advisor, FCC, July 18, 1996 (Bell Atlantic July 18 *Ex Parte*). BellSouth also raises the need for mediation to prevent unauthorized modification of information within an incumbent LEC's AIN SCP database. BellSouth July 16 *Ex Parte*. Incumbent LECs' comments in this proceeding and in the IN docket generally focus on the need for mediation to prevent a competitor's database from sending inappropriate AIN signaling information to the incumbent LEC's switch (see *infra* Section V.I.4.c.(4)). See PacTel comments at 61-62; BellSouth comments at 45-46; Bell Atlantic comments at Appendix 3, 18-19; U S West comments in CC Docket No. 91-346 at 73-74, 84; NYNEX comments in CC Docket No. 91-346 at 14-15; SBC comments in CC Docket No. 91-346 at 8-9.

¹¹⁴¹ Mediation may be necessary for requesting carriers to ensure that inadvertent feature interactions, network management control and customer privacy concerns do not arise from such access. See e.g., Ameritech July 17 *Ex Parte*.

mediation concerns.¹¹⁴² Incumbent LECs may establish reasonable certification and testing programs for carriers proposing to access AIN call related databases in a manner similar to those used for SS7 certification.¹¹⁴³

489. We recognize that providing unbundled access to AIN call-related databases at cost, and in particular providing access to the incumbent LEC's software applications that reside in the AIN databases, may reduce the incumbent's incentive to develop new and advanced services using AIN. In the near term, however, requiring entrants to bear the cost of deploying a fully redundant network architecture, including AIN databases and their application software, would constitute a significant barrier to market entry for competitive carriers. As local service markets develop, however, competition may reduce the incumbent LEC's control over bottleneck facilities and increase the importance of innovation. In those circumstances it is important that incumbent LECs have the incentive to develop unique and innovative services supported by AIN. Therefore at a later date, we will revisit the proper balance between providing unbundled access and maintaining the incentives of incumbent LECs to innovate.

490. Parties generally do not identify proprietary concerns when access to call-related databases is provided via STPs. In general, signaling protocols used to access call-related databases adhere to open Bellcore standards. Parties also do not raise proprietary concerns with specific call-related databases themselves. Today, many separate carriers access incumbent LEC Toll Free Calling and LIDB databases for the proper routing and billing of calls.¹¹⁴⁴ Thus, we conclude that, in general, unbundled access to call-related databases does not present proprietary concerns with respect to section 251(d)(2)(A). Incumbent LECs may, however, present such proprietary concerns in the arbitration process with regard to specific databases, and states (or the Commission acting pursuant to section 252(e)(5)) may take action to limit unnecessary access to proprietary information.

491. We also conclude that denying access to call-related databases would impair the ability of a competing provider to offer services such as Alternative Billing Services and AIN-based services. AIN-based services represent the cutting edge of telephone exchange services, and competitors would be at a significant disadvantage if they were forced to develop their own AIN capability immediately. In addition, the record indicates that deployment of call-related databases in the near term would represent a substantial cost to new entrants. As mentioned above, incumbent LECs argue that access to certain call-related databases is already

¹¹⁴² See, e.g., Christine Maglott, *Information Industry Liaison Committee Wrestles with Mediation Issues*, ATIS News, 3, Vol. 11, No.3, May-June, 1996.

¹¹⁴³ SBC notes that carriers proposing to gain access to its SS7 network and gather information from its SCP must be certified and enter into contractual agreements for information access and proper billing. SBC comments at 47-48.

¹¹⁴⁴ See AT&T July 16 *Ex Parte*.

competitively available and therefore they should not have to unbundle access to them.¹¹⁴⁵ As discussed above, however, section 251(d)(2)(B) would only relieve an incumbent LEC of its unbundling obligation if other unbundled elements in its network could provide the same service without diminution of quality. Because of the absence of such elements, we conclude that a competitor's ability to provide service would be significantly impaired if it did not have unbundled access to incumbent LECs' call-related databases, including the LIDB, Toll Free Calling, and AIN databases for the purpose of switch query and database response through the SS7 network.

492. We also conclude that access to call-related databases as discussed above, and access to the service management system discussed below, must be provided to, and obtained by, requesting carriers in a manner that complies with section 222 of the Act. Section 222, which was effective upon adoption, sets out requirements for privacy of customer information. Section 222(a) provides that all telecommunications carriers have a duty to protect the confidentiality of proprietary information of other carriers, including resellers, equipment manufacturers, and customers. Section 222(b) requires that telecommunications carriers that use proprietary information obtained from another telecommunications carrier in providing any telecommunications service "shall use that information only for such purpose, and shall not use such information for its own marketing purposes."¹¹⁴⁶ Sections 222(c) and (d) provide protection for, and limitations on the use of, and access to, customer proprietary network information (CPNI).¹¹⁴⁷ We note that we have initiated a proceeding to clarify the obligations of carriers with regard to section 222(c) and (d).¹¹⁴⁸

(3) Service Management Systems

493. Finally, we conclude that incumbent LECs should provide access, on an unbundled basis, to the service management systems (SMS), which allow competitors to create, modify, or update information in call-related databases. We believe it is technically feasible for incumbent LECs to provide access to the SMS in the same manner and method that they provide for their

¹¹⁴⁵ We note that competitive provision of AIN SCP database services is not evidenced in the record.

¹¹⁴⁶ 47 U.S.C. § 222(b).

¹¹⁴⁷ Section 222(f)(1) defines CPNI as "information that relates to the quantity, technical configuration, type, destination, and amount of use of a telecommunications service subscribed to by any customer of a telecommunications carrier, and that is made available to the carrier by the customer solely by virtue of the carrier-customer relationship." 47 U.S.C. § 222(f)(1)(A).

¹¹⁴⁸ See *Implementation of the Telecommunications Act of 1996: Telecommunications Carriers' Use of Customer Proprietary Network Information and other Customer Information*, Notice of Proposed Rulemaking, CC Docket No. 96-115, FCC 96-221 (rel. May 17, 1996).

own access. We find that such access is necessary for competitors to effectively use call-related databases, which we have already found to be critical to entry in the local exchange market.

494. Commenters argue that they need equal access to incumbent LECs' SMSs to write or populate their own information in call-related databases.¹¹⁴⁹ As discussed above, information bound for many call-related databases is entered first at an off-line SMS, which then downloads the information to the call-related database for real time use on the network. We find that competing provider access to the SMS is technically feasible if it is provided in the same or equivalent manner that the incumbent LEC currently uses to provide such access to itself.¹¹⁵⁰ For example, if the incumbent LEC inputs information into the SMS using magnetic tapes, the competitive carrier must be able to create and submit magnetic tapes for the incumbent to input into the SMS in the same way the incumbent inputs its own magnetic tapes. If the incumbent accesses the SMS through an electronic interface, the competitive carrier should be able to access the SMS through an equivalent electronic interface.¹¹⁵¹ We further conclude that, whatever method is used, the incumbent LEC must provide the competing carrier with the information necessary to correctly enter or format for entry the information relevant for input into the particular incumbent LEC SMS.

495. Specifically with respect to AIN, we find that the record in the *Intelligent Networks* proceeding supports access to the SMS.¹¹⁵² A competing carrier seeking access to the SMS that is part of the incumbent LEC's AIN would do so through the incumbent LEC's service creation environment (SCE), an interface used to design, create, and test AIN supported services. Software successfully tested in the SCE is transferred to the SMS, where it is then downloaded into an SCP database for active deployment on the network. We are persuaded that the risk of harm to the public switched network from such access to the SMS is minimized by the technical

¹¹⁴⁹ AT&T comments at 26; MCI comments at 34-35.

¹¹⁵⁰ Many carriers currently submit such information to incumbent LECs or third party SMSs. USTN reply at 1-4; Bell Atlantic comments at Attachment 3, 16; GTE comments at 40-41 n.61.

¹¹⁵¹ For example, access to the AIN SMS is accomplished through the SCE, which is a computer environment for the design and test of AIN based services.

¹¹⁵² See *Intelligent Networks*, Notice of Proposed Rulemaking, 8 FCC Rcd 6813 (1993). In the *Intelligent Networks* proceeding, most incumbent LECs supported SMS access. See GTE comments in CC Docket No. 91-346 at 21; United and Central comments in CC Docket No. 91-346 at 12; SNET comments in CC Docket No. 91-346 at 5; NYNEX comments in CC Docket No. 91-346 at 3 n.3, 10-11; BellSouth update comments in CC Docket No. 91-346 at 6; Bell Atlantic comments in CC Docket No. 91-346 at 6. Other parties, including potential competitors and manufacturers, also supported SMS access. See Siemens comments in CC Docket No. 91-346 at 2; TIA comments in CC Docket No. 91-346 at 2; MCI comments in CC Docket No. 91-346 at 10; Ericsson reply in CC Docket No. 91-346 at 2-3. Many commenters asserted that SMS access through the SCE would provide a valuable opportunity for third parties to create services. See GSA comments in CC Docket No. 91-346 at 3; SNET comments in CC Docket No. 91-346 at 2; Siemens comments in CC Docket No. 91-346 at 2; Ericsson reply in CC Docket No. 91-346 at 2-3; TIA comments in CC Docket No. 91-346 at 2; MCI comments in CC Docket No. 91-346 at 10.

safeguards inherent in the SCE and SMS. As described in comments filed in the *Intelligent Networks* docket, competitors accessing the SCE and SMS would not communicate directly with the LEC's database or switch.¹¹⁵³ We therefore conclude that such access is technically feasible, and that incumbent LECs should provide requesting carriers with the same access to design, create, test, and deploy AIN-based services at the SMS that the incumbent LEC provides for itself.¹¹⁵⁴ While many incumbent LECs express concerns with the technical feasibility of access to AIN, we conclude that those concerns deal primarily with the interconnection of third party AIN SCP databases to the incumbent LEC's AIN and not access to the SCE and SMS.¹¹⁵⁵

496. We recognize that, although technically feasible, providing nondiscriminatory access to the SMS and SCE for the creation and deployment of AIN services may require some modifications, including appropriate mediation, to accommodate such access by requesting carriers. We note that BellSouth is currently prepared to tariff and offer such access to third parties, and other incumbent LECs, including Bell Atlantic and Ameritech, indicate that they have made significant progress towards implementing such access.¹¹⁵⁶ Therefore, if parties are unable to agree to appropriate mediation mechanisms through negotiations, we conclude that during arbitration of such issues the states (or the Commission acting pursuant to section 252(e)(5)) must consider whether such mediation mechanisms will be available and will adequately protect against intentional or unintentional misuses of the incumbent's AIN facilities.

¹¹⁵³ In their comments, BellSouth and Bell Atlantic describe the way they provide or plan to provide access to the SMS for third parties. Bell Atlantic proposes to first develop and deploy AIN services based on customer request and then subsequently to allow third parties themselves to create AIN services at a terminal either in a Bell Atlantic office or a third party office. Bell Atlantic comments in CC Docket No. 91-346 at 6. BellSouth proposes to permit third parties to use the service logic resident on BellSouth's service creation environment to create AIN services. BellSouth update reply in CC Docket No. 91-346 at 10.

¹¹⁵⁴ Incumbent LECs that have deployed AIN must provide such access to competing carriers that will allow them to develop call processing applications pursuant to the same parameters the incumbent LEC uses itself, such as the time-of-day and origination of call parameters. BellSouth's recently proposed service to provide access to its SCE and SMS appears to be an example of the type of access to the SMS that incumbent LECs must provide to competitors upon request. *Pleading Cycle Established for Comments on BellSouth Telecommunications, Inc.'s Petition for Expedited Waiver of Part 69 Rules*, Public Notice, DA 96-27 (Jan. 17, 1996) (*BellSouth Part 69 Waiver Petition*).

¹¹⁵⁵ Of the three potential points of access to AIN proposed in the *Intelligent Networks* NPRM, LEC commenters generally agree that SMS access poses the least risk of harm to the public switched telephone network. See Bell Atlantic comments in CC Docket No. 91-346 at 6-7; BellSouth comments in CC Docket No. 91-346 at 12, 13; GTE comments in CC Docket No. 91-346 at 19, 21; NYNEX comments in CC Docket No. 91-346 at 3; PacTel comments in CC Docket No. 91-346 at 20-21; SBC comments in CC Docket No. 91-346 at 5, 8; U S West comments in CC Docket No. 91-346 at 52; United and Central comments in CC Docket No. 91-346 at 1. Competitors also support such access. See MCI Comments at 6; Siemens Comments at 2; TIA Comments at 2.

¹¹⁵⁶ *BellSouth Part 69 Waiver Petition*. BellSouth proposes to tariff services that permit third parties to create and administer AIN services through access to the SCE and SMS. Bell South's SCE/SMS service will support third-party service development with the following AIN triggers: off-hook immediate, off-hook delay, public office dialing plan, customized dialing plan, feature code and terminating attempt triggers. *Id.* See Bell Atlantic comments in CC Docket No. 91-346 at 6, 8; Ameritech July 17 *Ex Parte*.

We again encourage incumbent LECs and competitive carriers to participate in industry fora and industry testing to resolve outstanding mediation concerns.

497. Parties did identify some proprietary concerns regarding access to the SCE and SMS used in the incumbent LEC's AIN. Some incumbent LECs contend that the interface used at the SCE is proprietary in nature.¹¹⁵⁷ GVNW argues that specific AIN-based services designed by carriers should be proprietary in nature.¹¹⁵⁸ Competitors correctly argue that AIN can be used, not only for telecommunication services traditionally supported by the switch, but as a means to deploy advanced services not otherwise possible.¹¹⁵⁹ We find that competing providers without access to AIN would be at a significant disadvantage to incumbent LECs, because they could not necessarily offer the same services to the customer. This access will help competing providers without imposing costs on incumbent LECs because the entrants will pay the cost.¹¹⁶⁰ We therefore conclude, under section 251(d)(2)(A), that access to AIN, including those elements that may be proprietary, is necessary for successful entry into the local service market.

498. Most parties generally did not identify proprietary concerns with access to those SMSs used other than for AIN. Some parties, however, argue that there are proprietary interfaces used to enter information into various databases.¹¹⁶¹ Competing carriers counter that competitive providers would not need to have direct access to the proprietary methods of data entry used by incumbent LECs, and as a result we conclude that the unbundled access to SMSs used for other than AIN does not present proprietary concerns with respect to section 251(d)(2)(A).¹¹⁶²

499. We also conclude that unbundled access to all SMSs is necessary for a competing provider to effectively use unbundled call-related databases. We find that the inability of competing carriers to use the SMS in the same manner that an incumbent LEC uses to input data itself would impair the ability of a competing carrier to effectively offer services to its customers using unbundled call-related databases. Commenters in the record point out that access to call-related databases alone would not allow the competing carrier to provide such services to its

¹¹⁵⁷ U S West comments at 58 n.124 (for example, BellSouth uses DESIGNedge for such access which utilizes a proprietary database technology tailored to its network); Bell Atlantic comments at 28-29.

¹¹⁵⁸ GVNW comments at 30 (incumbent LECs should be able to copyright AIN based services that they create or incumbents will have much less incentive to develop such services).

¹¹⁵⁹ AT&T comments at 23-25; Cable & Wireless comments at 24; MCI comments at 18, 33.

¹¹⁶⁰ See *supra*, Section VII.

¹¹⁶¹ AT&T June 13 *Ex Parte*.

¹¹⁶² AT&T comments at 26.

customers without access to an SMS.¹¹⁶³ We also conclude that AIN-based services are important to a new entrant's ability to compete effectively for customers with the incumbent LEC, and in developing new business by introducing new AIN based services. Thus we conclude that a competitor's ability to provide service would be significantly impaired if it did not have unbundled access to an incumbent LEC's SMS, including access to the SMS(s) used to input data to the LIDB, Toll Free Calling, Number Portability and AIN call-related databases.

500. We reject the contention by several incumbent LECs that signaling and database access was meant by the 1996 Act to apply only to such access as is necessary for call routing and completion. Although the competitive checklist for BOC entry into in-region interLATA services under section 271 requires "nondiscriminatory access to databases and associated signaling necessary for call routing and completion"¹¹⁶⁴ the definition of a network element is more comprehensive in scope. A network element as defined by the 1996 Act includes "databases" and in particular "databases sufficient for billing and collection or used in the transmission, routing, or *other* provision of a telecommunications service."¹¹⁶⁵ We find that the inclusion of "other provision of a telecommunications service" meant Congress intended the unbundling of databases to be read broadly and could include databases beyond those directly used in the transmission or routing of a telecommunications service.

(4) Third Party Call-Related Databases

501. We find that there is not enough evidence in the record to make a determination as to the technical feasibility of interconnection of third party call-related databases to the incumbent LEC's signaling system. Some parties argue that such interconnection, including the interconnection of third party AIN SCP databases, would allow them to provide more efficient or advanced call processing and services to customers, thereby increasing their ability to compete with the incumbent LEC.¹¹⁶⁶ AT&T and MCI specifically argue that it would be technically feasible for them to interconnect their AIN SCP database to an incumbent LEC's AIN for the purpose of providing call processing instructions to the incumbent LEC's switch.¹¹⁶⁷ Incumbent LECs contend that such interconnection would leave their switch vulnerable to a multitude of potential harms because sufficient mediation for such interconnection does not currently exist at

¹¹⁶³ Ericsson comments at 6.

¹¹⁶⁴ 47 U.S.C. § 271(c)(2)(B)(x).

¹¹⁶⁵ 47 U.S.C. § 153(29).

¹¹⁶⁶ AT&T comments at 23-25; Cable & Wireless comments at 24; MCI comments at 18, 33.

¹¹⁶⁷ AT&T comments at 23-25; MCI comments at 18, 33.

the STP or SCP and has not yet been developed.¹¹⁶⁸ AT&T counters that there is no need for additional mediation and that sufficient certification and testing of AIN based services before deployment in such a fashion is technically feasible.¹¹⁶⁹

502. At this time, in view of this record and the record compiled in the *Intelligent Networks* docket, we cannot make a determination of the technical feasibility of such interconnection. We do, however, believe that state commissions could find such an arrangement to be technically feasible and we do not intend to preempt such an order through these rules. The Illinois Commission recently ordered access to incumbent LECs' AIN that does allow for this type of interconnection.¹¹⁷⁰ We intend to address this issue early in 1997, either in the IN docket or in a subsequent phase of this proceeding, taking into account, *inter alia*, any relevant decisions of state commissions.¹¹⁷¹

503. We also address the impact on small incumbent LECs. For example, GVNW asserts that any national rule requiring this form of interconnection would require many small incumbent LECs to make uneconomic upgrades of their switches in order to accommodate it.¹¹⁷² We have considered the economic impact of our rules in this section on small incumbent LECs. Accordingly, we have not adopted any national standards concerning AIN at this time. We also note that section 251(f) provides relief for certain small LECs from our regulations implementing section 251.

5. Operation Support Systems

a. Background

504. We sought comment, in the NPRM, on whether national requirements for electronic ordering interfaces would reduce the time and resources required for new entrants to enter and

¹¹⁶⁸ See U S West comments in CC Docket No. 91-346 at 73-74, 84; NYNEX comments in CC Docket No. 91-346 at 14-15; SBC comments in CC Docket No. 91-346 at 8-9.

¹¹⁶⁹ See AT&T *Intelligent Networks Proposal* Attachment at 2.

¹¹⁷⁰ *Illinois Wholesale Order*.

¹¹⁷¹ There are other additional outstanding issues from the *Intelligent Networks* proceeding that are not resolved here including direct access to the SCP and national standards for AIN access.

¹¹⁷² GVNW comments at 30-31.

compete in regional markets.¹¹⁷³ We also sought comment on the unbundling of databases generally in our discussion on unbundling database and signaling systems.¹¹⁷⁴

b. Comments

505. Several new entrants argue that incumbent LECs should be required to unbundle access to their "operations support systems" and "back-office" databases as network elements.¹¹⁷⁵ Parties define operations support systems and back office databases generally to include those systems and databases required for pre-ordering, ordering, provisioning, maintenance and repair, and billing.¹¹⁷⁶ Several state commissions report that they have required incumbent LECs to provide access to some of these systems and databases.¹¹⁷⁷ Potential competitors argue that, without such access, incumbent LECs can make it extremely difficult for them to utilize unbundled network elements and resold services, thereby severely impairing their ability to compete.¹¹⁷⁸ Competitors argue that they should be able to access such incumbent LEC systems as necessary to receive and input data.¹¹⁷⁹ Competitors contend that such access is required by

¹¹⁷³ NPRM at para. 89.

¹¹⁷⁴ NPRM at paras. 107-114.

¹¹⁷⁵ ACTA comments at 14; ACSI comments at 42-43; ALTS comments at 31; American Network Exchange comments at 5; AT&T comments at 33-39; Cable & Wireless comments at 36-37; Citizens Utilities comments at 15; CompTel comments at 31; GCI comments at 16; MCI comments at 33; TCC comments at 54-60; Teleport comments at 38-39; Vartec comments at 6-10 (incumbent LECs should unbundle access to the Billing Name and Address database); WorldCom June 14 *Ex Parte* at 4-5; CompTel June 14 *Ex Parte*.

¹¹⁷⁶ See Competition Policy Institute comments at 16; GCI comments at 16; MCI comments at 18; NCTA comments at 42; Sprint comments at 17-18, 41; Teleport comments at 38-39. MCI also identifies several "back office" databases it believes are necessary to provide competitive local telephone service including, among others, Customer Record Information System (CRIS), Master Street Address Guide (MSAG), CMDS System (industry mechanism to exchange billed messages such as third-party, collect and calling cards), Telecommunications Management Network Type Database (TMN), and Number Assignment Database. MCI July 3 *Ex Parte* at 2-4.

¹¹⁷⁷ Texas Commission comments at 19 (number assignment, ordering and repairs); In Re Petition of AT&T for the Commission to Establish Resale Rules, Rates, Terms and Conditions and the Initial Unbundling of Services, Georgia Commission Docket 6352, (Georgia Commission May 29, 1996); Order Declaring Resale Prohibitions Void and Establishing Tariff Terms, New York Commission Case 94-C-0095 and Case 95-C-0657 (New York Commission June 25, 1996).

¹¹⁷⁸ ACSI comments at 47; AT&T comments at 33-39 (an incumbent LEC's monopoly control over operational support systems is as formidable an obstacle to market entry as its control over the network itself); Cable & Wireless comments at 36-37; Citizens Utilities comments at 15; Continental comments at 19; Sprint comments at 17-19, 22; TCC comments at 54-60 (incumbent LECs can block new entry by refusing to install "automated, nondiscriminatory systems" for ordering, installing, maintaining, repairing and billing); Teleport comments at 38-39; CompTel comments at 37-38 (such access is necessary for competitors to combine unbundled network elements into telecommunications services of their own design); Vartec comments at 7-8 (competitors will be unable to compete unless incumbent LECs provide access to unbundled billing and collection functions).

¹¹⁷⁹ See, e.g., ACSI comments at 47; MCI comments at 24.

sections 251(c)(3) and 251(c)(4) as part of the terms and conditions of each section.¹¹⁸⁰ TCC further argues that until such access is in place, incumbent LECs will not have met the requirements of either section 251(c)(3) or (c)(4) and therefore BOCs cannot be deemed to have met the requirements of section 271(c)(2)(B)(i).¹¹⁸¹

506. In contrast, most incumbent LECs argue that operations support systems do not qualify as network elements under the 1996 Act.¹¹⁸² Ameritech argues that competitors have not demonstrated that they need access to such systems in order to provide telecommunications services.¹¹⁸³ Several incumbent LECs assert that an incumbent LEC may negotiate with a competitor to provide such support services, but that the 1996 Act does not require them to unbundle these systems as network elements.¹¹⁸⁴ Other parties argue that such access is not currently technically feasible and should be resolved through the negotiations process.¹¹⁸⁵ SBC contends that its provisioning processes are neutral with respect to competing providers of service and that provisioning for competitors does not take longer than provisioning for its own customers.¹¹⁸⁶

507. Several potential local competitors, including most large IXCs, urge the Commission to require incumbent LECs to provide access to their operation support systems

¹¹⁸⁰ TCC comments at 56 (section 251(c)(3) requires that unbundled network elements be provided at nondiscriminatory rates, terms and conditions, and section (c)(4) requires that services for resale be provided free of any "unreasonable or discriminatory conditions or limitations"); CompTel comments at 37 (Commission should set an aggressive, firm deadline for compliance); GCI comments at 16.

¹¹⁸¹ TCC comments at 56-57.

¹¹⁸² BellSouth comments at 45; GTE comments at 44; U S West comments at 48; Lincoln Tel. reply at 12-14; Ameritech reply at 19-20 (only for routing, terminating, billing or providing telecommunications service); Bell Atlantic reply at 12-23 n.15 (not necessary to offer service and numerous resellers have operated in Bell Atlantic territory without such direct access); BellSouth reply at 24, n.45; GTE reply at 23; NYNEX reply at 33-34; PacTel reply at 22 (operations support systems not used in the provision of a telecommunications service). Letter from Michael Glover, General Attorney, Bell Atlantic, to William Kennard, General Counsel, FCC, April 15, 1996 (Bell Atlantic April 15 *Ex Parte*).

¹¹⁸³ Ameritech comments at 19-20; NYNEX comments at 33-34 (administrative databases are not used in routing or completion of calls); Bell Atlantic reply at 14; U S West reply at 27.

¹¹⁸⁴ NYNEX comments at 33-34; Ameritech reply at 19-20; Lincoln Tel. reply at 14 (competitors must provide their own ordering systems); Bell Atlantic April 15 *Ex Parte* at 9.

¹¹⁸⁵ Lincoln Tel. comments at 9 (re-engineering customer service systems only for purpose of supporting competitors would be extremely profligate); GVNW comments at 10-12.

¹¹⁸⁶ Letter from Sandra Wagner, Director, Federal Regulatory, SBC Communications, Inc. to William Caton, Acting Secretary, FCC, June 4, 1996 (SBC June 4 *Ex Parte*).

through real-time "electronic interfaces" or "electronic bonding."¹¹⁸⁷ AT&T argues that virtually every incumbent LEC uses automated interfaces internally to support and coordinate functionalities such as ordering, provisioning, maintenance, and billing.¹¹⁸⁸ TCC argues that the availability of such operational interface standards for external interaction are limited, and that incumbent LECs have powerful disincentives to develop and implement such interfaces in the absence of clear rules requiring them.¹¹⁸⁹ Parties commented that such interfaces are necessary so that carriers relying on interconnection, unbundled network elements, or resale from the incumbent LEC can offer their customers services of the same quality as those offered by the incumbent LEC.¹¹⁹⁰ AT&T argues that incumbent LECs must provide such access for competitors at the same level of quality and within the same intervals as they do for their own end-users so that customers do not "perceive any differences in the quality of service provided by one carrier as compared to another."¹¹⁹¹ Competitors contend that such interfaces need to be similar to the PIC conversion process, so that it is as easy for consumers to switch local service providers as it is to switch interexchange carriers.¹¹⁹² Teleport argues that it would be at a competitive disadvantage if it was required to use slower, more expensive manual systems while the incumbent LEC continued to use its modern and efficient systems.¹¹⁹³

¹¹⁸⁷ ACTA comments at 14-15; AT&T comments at 33-39; MCI comments at 33-34; Sprint comments at viii, 17-19, 22; Teleport comments at 38-39; Texas Commission comments at 19; TCC comments at 56-58 Appendix D; AT&T reply at 20-21.

¹¹⁸⁸ AT&T comments at 36-37.

¹¹⁸⁹ TCC comments at 55.

¹¹⁹⁰ ACTA comments at 14-15; AT&T comments at 33-39; MCI comments at 33-34; Sprint comments at viii, 17-19, 22; Teleport comments at 38-39; TCC comments at 55 (a competitor must be able to seamlessly deliver services, add features, and bill "as if it owned the facilities").

¹¹⁹¹ AT&T comments at 35. AT&T argues that such a requirement is supported by Commission precedent including *Policy and Rules Concerning the Furnishing of Customer Premises Equipment, Enhanced Services and Cellular Communications Services by the Bell Operating Companies*, Report and Order, 95 F.C.C. 2d 1117, 1135-36 (1983) (adopting safeguards to prevent BOCs from providing superior access, installation, and maintenance services to themselves than to competitive providers of CPE, enhanced services and cellular services); *Amendment of Sections 64.702 of the Commission's Rules and Regulations (Third Computer Inquiry)*, Report and Order, 104 F.C.C. 2d 958, 1026-27 (1986) (requiring BOCs to provide competing enhanced service providers with comparably efficient interconnection "to control potential discrimination" by BOCs in favor of their own offerings); *id.* at 1041 (time periods for installation, maintenance, and repair must be the same for competing carriers as for BOC's own offerings).

¹¹⁹² ACTA comments at 16; AT&T comments at 35-36; CompTel comments at 3, 37; TCC comments at 54 (should be as easy for consumers to switch local service providers as it is currently to switch long distance providers). See Letter from Mary Brown, Director, Corporate Rates & Federal Regulatory Analysis, MCI, to William Kennard, General Counsel, FCC, Mar. 20, 1996 (*LXCs Joint Ex Parte*) at 6.

¹¹⁹³ Teleport comments at 39; accord TCC comments at 55 (for example, an incumbent LEC could enter its own service orders electronically, but require the competing carrier to submit such orders manually via a multiple page form faxed or e-mailed to the incumbent for subsequent processing).

508. AT&T and TCC commented on AT&T's experience in the Rochester, New York market as a reseller of Rochester Telephone's services under Rochester Telephone's Open Market Plan.¹¹⁹⁴ Parties noted that AT&T was required to submit a detailed order form, initially through a facsimile machine and later through e-mail, in order to resell Rochester Telephone services.¹¹⁹⁵ AT&T asserts that it was signing up between one and two hundred new customers daily and therefore had to fax up to 1400 pages daily to Rochester Telephone.¹¹⁹⁶ AT&T and TCC contend that such a manual process is clearly discriminatory and in violation of the 1996 Act because it creates additional delay and the potential for human error, resulting in customer dissatisfaction.¹¹⁹⁷ TCC argues further that such a disparity in systems allows for the incumbent LEC to schedule service commencement and issue new phone numbers during the initial contact with a customer, while the competitor, at best, must put the customer on hold while it calls the incumbent LEC to obtain such information.¹¹⁹⁸

509. Several parties argue that electronic interfaces should provide competitors with transparent access to the underlying information rather than the individual databases necessary for ordering and provisioning, installation, maintenance and repair, recording and billing, and monitoring service.¹¹⁹⁹ Commenters assert that large incumbent LECs may have, for example, certain information necessary for billing, stored among several databases systems, each with individual operating systems.¹²⁰⁰ AT&T asserts that it will be difficult and expensive for a

¹¹⁹⁴ See Petition of Rochester Telephone Corp. for Approval of Proposed Restructuring Plan, Opinion and Order Approving Joint Stipulation and Agreement, Case 93-C-0103, Opinion No. 94-25 (NY Pub. Serv. Comm'n) (Nov. 10, 1994); *In the Matter of Rochester Telephone Corp., Petition for Waivers to Implement its Open Market Plan*, 10 FCC Rcd 6776 (1995); see also Big Boys Come Calling, N.Y. Times, Oct. 19, 1995 at 1.

¹¹⁹⁵ AT&T comments at 34-35 (AT&T had to complete a multi-page form for every individual customer that wanted to switch to AT&T and Rochester Telephone would not change a customer's service until AT&T faxed multiple documents to it); TCC comments at 55.

¹¹⁹⁶ AT&T comments at 34 (AT&T estimated that for each customer it ordered services for, it took at least four hours for Rochester to complete and respond to AT&T).

¹¹⁹⁷ AT&T comments at 34 (AT&T argues that the problems with a manual process were "intolerable" in the Rochester market, and would be significantly magnified in larger or more heavily populated areas); TCC comments at 55.

¹¹⁹⁸ TCC comments at 55-56 (at worst the competing carrier must hang up with the customer and call back later with the necessary information).

¹¹⁹⁹ AT&T comments at 33-39; Telecommunications Resellers Ass'n comments at 22 n.52-53; TCC comments at 56-57 (electronic interface capabilities should allow competitors, *inter alia*, to enter customer trouble reports, obtain report commitments, schedule customer site visits and receive notification of network conditions affecting service); Letter from Antoinette Cook Bush, Counsel, Ameritech to William Caton, Acting Secretary, FCC, July 10, 1996 (Ameritech July 10 *Ex Parte*). Ameritech argues that, once operational interfaces are in place, it will be unnecessary for carriers to provide competitors with direct access to the underlying systems or databases providing such functions. *Id.* at 5.

¹²⁰⁰ AT&T comments at 33-39.

competing carrier to individually access multiple systems and that the difficulty and expense will be compounded for parties wishing to compete in several incumbent LECs' territories.¹²⁰¹ AT&T contends, therefore, that incumbent LECs should create and deploy a "gateway" to all of their internal operations support systems and databases so that a competing carrier could use one method of access to the underlying information.¹²⁰² U S West contends that competitors must develop systems that are compatible with incumbent LEC electronic interfaces and argues that incumbent LECs should not be required to develop individualized systems for each competing carrier.¹²⁰³

510. Since the passage of the 1996 Act, several states have proceeded to implement rules for local competition, several of which include provisions concerning electronic interfaces.¹²⁰⁴ The Georgia Commission ordered BellSouth to establish electronic operational interfaces by July 15, 1996, and ordered both incumbent BellSouth and requesting carrier AT&T to submit a joint report to the commission within thirty days concerning the implementation schedule necessary to deploy such interfaces.¹²⁰⁵ After a motion for reconsideration, the Georgia Commission provided BellSouth with an additional month to establish these interfaces and added additional deadlines for the deployment and operation of such interfaces.¹²⁰⁶ The Illinois Commission ordered Ameritech and Centel to provide competitors with "all operational interfaces at parity with those provided their own retail customers."¹²⁰⁷ The Louisiana Commission has proposed rules on local competition that require incumbent LECs to deploy systems for competitors that are equivalent

¹²⁰¹ *Id.*

¹²⁰² *Id.*

¹²⁰³ Letter from Cyndie Eby, Executive Director -- Federal Regulatory, U S West to Robert Tanner, Attorney Advisor, FCC, July 9, 1996 (U S West July 9 *Ex Parte*).

¹²⁰⁴ Letter from Bruce Cox, Government Affairs Director, AT&T to William Caton, Acting Secretary, FCC, July 11, 1996 (AT&T July 11 *Ex Parte*). AT&T submitted orders or rules from eight states that have taken action on the issue of electronic interfaces. *Id.*

¹²⁰⁵ Petition of AT&T for the Commission to Establish Resale Rules, Rates, Terms and Conditions and the Initial Unbundling of Services, Docket No. 6352-U at 11-12, 15 (Georgia Commission May 29, 1996). The Georgia Commission ordered BellSouth to establish interfaces for "pre-service ordering, service ordering and provisioning, directory listing and line information databases, service trouble reporting, and daily usage data." *Id.* at 15.

¹²⁰⁶ Motion for Reconsideration in Docket No. 6352-U (Georgia Commission July 2, 1996). The Georgia Commission directed that most electronic interfaces must be fully operational by the end of 1996, and established March 31, 1997 as an absolute deadline. *Id.*

¹²⁰⁷ *Illinois Wholesale Order*. The Illinois Commission ordered both incumbent LECs, to the extent they could not "fully and immediately" implement operational parity, to submit a plan with specific timetables for achieving compliance. *Id.* at 51.

to those used by incumbents for their own retail exchange services.¹²⁰⁸ Under those rules, such access must be equal to that provided to an incumbent LECs' own personnel.¹²⁰⁹ The California Commission adopted interim rules ordering incumbent LECs to deploy automated on-line systems for access by competitors.¹²¹⁰ The Indiana Commission concluded that a competitor's ability to utilize "electronic access, technical interfaces, or access to databases to place service orders, receive phone number assignments, receive information necessary to bill [its] customers and to inform the incumbent LEC of cases of trouble" is essential to the development of resale competition.¹²¹¹ Indiana ordered incumbent LECs to provide all operational interfaces at parity with those the incumbent provides to its own retail customers.¹²¹² The Ohio Commission's rules on local competition require all LECs to provide "nondiscriminatory, automated operational support systems" that support access by competing carriers to such functions as pre-ordering, ordering, provisioning, repair and maintenance, number assignment, and billing.¹²¹³ The Oklahoma Commission has proposed rules that require an incumbent LEC, to the extent it provides itself, its affiliates or subsidiaries, automated interfaces for the purpose of service ordering, maintenance or repair, to make such interfaces available to competitors.¹²¹⁴

511. A few incumbent LECs commented on their own efforts to develop and implement electronic interfaces, including development of a single gateway for competing carrier access. Ameritech contends that "operational interfaces are essential to promote viable competitive

¹²⁰⁸ Substitute Proposed Regulations for Competition in the Local Telecommunications Market, Docket No. U-20883 (Louisiana Commission March 5, 1996). The Louisiana Commission further requires "direct on-line access" to incumbent LECs' mechanized order entry system, number administration system, trouble reporting and monitoring system, customer usage data, and local listing databases. *Id.*

¹²⁰⁹ *Id.*

¹²¹⁰ Order Instituting Rulemaking on the Commission's Own Motion into Competition for Local Exchange Service, R. 95-04-043 and I. 95-04-044 (California Commission April 26, 1995). The California Commission ordered such access for "service ordering and implementation scheduling." *Id.* at Appendix E, 14.

¹²¹¹ In the Matter of the Investigation on the Commission's Own Motion into Any and All Matters Relating to Local Telephone Exchange Competition Within the State of Indiana, Cause No. 39983, Interim Order on Bundled Resale and Other Issues (Indiana Commission July 1, 1996).

¹²¹² *Id.* at 49. The Commission also ordered incumbents Ameritech and GTE, to the extent they contend that they are unable to fully and immediately implement operational parity, to submit a comprehensive plan with specific timetables for achieving compliance. *Id.*

¹²¹³ In the Matter of the Commission Investigation Relative to the Establishment of Local Exchange Competition and Other Competitive Issues, Case No. 95-845-TP-COI (Ohio Commission June 12, 1996).

¹²¹⁴ All Sources Proposed Rules, Docket No. RM950000019 (Local Telephone Competition) (Oklahoma Commission March 7, 1996). Oklahoma rules clarify that such interfaces should not permit competitors to directly access the incumbent's underlying systems. *Id.* at 79.

entry.¹²¹⁵ Bell Atlantic states that it currently provides ordering and repair information to IXCs and is working on implementing similar electronic interfaces for competing local carriers.¹²¹⁶ GTE commented that it supports access to its trouble administration information for AT&T and MCI.¹²¹⁷ U S West also supports trouble administration electronic access for AT&T and MCI and is developing access to all of its operations support systems for IXCs.¹²¹⁸ U S West also states that it expects to build on such access for IXCs to develop access to meet the needs of local competitors.¹²¹⁹ NYNEX also provides currently for electronic access for IXCs to its operations support systems for presubscription, ordering and provisioning, trouble administration, and access billing.¹²²⁰ NYNEX, which has been ordered by the New York Commission to provide electronic interfaces for local competitors by October 1, 1996,¹²²¹ recently proposed to expand the use of its current electronic access for IXCs to local competitors.¹²²²

512. Sprint and MCI argue that current use of electronic interfaces, including the Customer Account Record Exchange (CARE) system used by LECs and IXCs to exchange subscriber account information electronically, is evidence of the technical feasibility of electronic bonding.¹²²³ TCC urges the Commission to require the provision of timely and accurate CARE by all local service providers to all IXCs.¹²²⁴ Vartec asserts that incumbent LECs and IXCs

¹²¹⁵ Ameritech July 10 *Ex Parte*.

¹²¹⁶ Letter from Patricia Koch, Assistant Vice President, Federal External Affairs and Regulatory Relations, Bell Atlantic, to William Caton, Acting Secretary, FCC, June 21, 1996 (Bell Atlantic June 21 *Ex Parte*).

¹²¹⁷ GTE reply at 23 n.31 (GTE provides electronic bonding for trouble administration to both AT&T and MCI).

¹²¹⁸ Letter from Cyndie Eby, Executive Director-Federal Regulatory to William Caton, Acting Secretary, FCC, June 28, 1996 (U S West June 28 *Ex Parte*). U S West supports a mediated electronic interface for IXCs to submit trouble reports to U S West. *Id*.

¹²¹⁹ U S West July 9 *Ex Parte*.

¹²²⁰ Letter from Alan Cort, Director, Federal Regulatory Matters, NYNEX to William Caton, Acting Secretary, FCC, July 12, 1996 (NYNEX July 12 *Ex Parte*). Such electronic access can be achieved through "a stand alone PC with a dial up modem, or through a customer's [IXC's] network to allow network to network connectivity." *Id*.

¹²²¹ Order Declaring Resale Prohibitions Void and Establishing Tariff Terms, Case 94-C-0095, *et. al*, (New York Commission June 25, 1996).

¹²²² Letter from Alan Cort, Director, Federal Regulatory Matters, NYNEX to William Caton, Acting Secretary, FCC July 17, 1996 (NYNEX July 17 *Ex Parte*). NYNEX will provide competing providers with access to its Direct Customer Access System. It is currently testing local service applications with potential new entrants. *Id*.

¹²²³ MCI comments at 18; Sprint comments at 17; TCC comments at 58 n.60 (currently there are approximately 56 million CARE transactions annually).

¹²²⁴ TCC comments at 58 (CARE information includes a customer's billing telephone number, working telephone number, billing address and service address).

already share access to the Billing Name and Address (BNA) database.¹²²⁵ TCC argues that all local service providers should be required to continue to support the standard interface that exists today for IXCs to request BNA information to complete the billing process for its customers.¹²²⁶ In addition, TCC notes that competing carriers purchasing unbundled local switching from the incumbent LEC will require access to billing data to bill IXCs for exchange access.¹²²⁷

513. Several commenters advocate national standards for electronic interfaces.¹²²⁸ Ameritech asserts that "[t]he ability to do business between multiple local exchange carriers and incumbent LECs dictates that these electronic interfaces adhere to national or industry-based standards where available."¹²²⁹ Sprint proposes that the Commission require industry to develop such standards and incumbent LECs to implement those standards within twelve months.¹²³⁰ AT&T argues that, while industry has primary responsibility for developing standards, section 256(b)(1) establishes an "oversight" responsibility for the Commission in the development of such industry standards.¹²³¹ American Communications Services argues that such standards should conform to Bellcore and ANSI requirements as well as relevant industry guidelines and manufacturer specifications.¹²³² Ameritech asserts that, if an ANSI or other national or industry-based standard exists, incumbent LECs should have a duty to conform their electronic interfaces to those standards within a reasonable period of time.¹²³³ Sprint reports that industry has been working on developing standards for electronic interfaces in the Electronic Communications Implementation Committee (ECIC),¹²³⁴ a working committee in the Telecommunications

¹²²⁵ Vartec comments at 8-9.

¹²²⁶ TCC comments at 58-59.

¹²²⁷ TCC comments at 59.

¹²²⁸ AT&T comments at 36-39; Cable & Wireless comments at 36-37; Teleport comments at 38-39.

¹²²⁹ Ameritech July 10 *Ex Parte* at 5.

¹²³⁰ Sprint comments at 18. *See also* AT&T comments at 38. AT&T urges the Commission to direct industry to work towards developing such standards, set a date for their implementation and make it clear to incumbent LECs that such standards are a necessary part of meeting the requirements of sections 251(c)(3) and (c)(4). *Id.*

¹²³¹ AT&T comments at 38.

¹²³² ACSI comments at 47; *see* Ameritech July 10 *Ex Parte* at 5. Ameritech adds that the telecommunications industry has the responsibility to develop its own standards through existing bodies such as ANSI. *Id.*

¹²³³ Ameritech July 10 *Ex Parte* at 5.

¹²³⁴ ECIC was formerly known as the Electronic Bonding Implementation Team (EBIT) before becoming a working committee of ATIS.

Industry Forum of the Alliance for Telecommunications Industry Solutions (ATIS).¹²³⁵ The ECIC defines electronic bonding as "interactive electronic information exchange involving application-to-application communications between telecommunications jurisdictions" supporting operations, administration, maintenance, and provisioning.¹²³⁶ The ECIC has already developed guidelines for a "Trouble Administration" application and is close to completing those for an "Interexchange Carrier/Customer Account Record Exchange" application.¹²³⁷ A few incumbent LECs identified the "Electronic Data Interchange (EDI)" standard as a potential basis for electronic interfaces.¹²³⁸ Several parties also commented that the Ordering and Billing Forum (OBF) is working on developing standards for electronic interfaces.¹²³⁹ SBC and NYNEX note that ECIC, OBF, EDI and the T1M1 standards committees¹²⁴⁰ are all working in conjunction to develop electronic interfaces for inter-telecommunications company transactions.¹²⁴¹

514. AT&T argues that a national standard for electronic interfaces should provide for a uniform method of access to underlying information by competing carriers to all incumbent LECs. As envisioned by AT&T, such a gateway would provide transparent access for all competing local exchange providers to incumbent LEC administrative and back office databases. Bell Atlantic and AT&T together agree that, given "appropriate guidance from the Commission, the industry can achieve consensus on sufficient data elements and formatting conventions to facilitate that 95% of all inter-telecommunications company transactions may be processed via

¹²³⁵ Letter from Jay Keithley, Vice President, Law & External Affairs, Sprint, to William F. Caton, Acting Secretary, FCC, June 25, 1996 (Sprint June 25 *Ex Parte*). Current active members of the ECIC include: Ameritech, AT&T, Bell Atlantic, BellSouth, Cincinnati Bell, DSET, GTE, MCI, NYNEX, Objective Systems Integrators, OpenCon Systems, Pacific Bell, Pirelli Cable, SNET, Southwestern Bell, Sprint, Touch of Gray Engineering, Telegenics, Teleport, and U S West. *Id.* See also Letter from Todd Silbergeld, Director—Federal Regulatory, SBC Communications to William Caton, Acting Secretary, FCC (July 12, 1996) (SBC July 12 *Ex Parte*).

¹²³⁶ Sprint June 25 *Ex Parte*.

¹²³⁷ Sprint June 25 *Ex Parte*. The ECIC will next work on a "Ordering/Provisioning" application. It has identified but not yet established priorities for other applications including: Performance Monitoring, Alarm Monitoring, Network Management, Traffic Management, Testing and Reporting, Ordering Competitive LEC Services (including Resale), Ordering SONET, Product Availability/Capability, Electronic Bonding for Government and Large Customers, and Intercompany Billing. *Id.* See also U S West July 9 *Ex Parte*.

¹²³⁸ Ameritech July 10 *Ex Parte* at 5-6. EDI is defined by the Telecommunications Industry Forum. *Id.* at 6.

¹²³⁹ AT&T comments at 38; BellSouth reply at 27; Ameritech July 10 *Ex Parte* at 5. An electronic ordering interface could be based on the "access service request" defined by OBF. Billing information could be exchanged via the "exchange message interface" or the "exchange message record" also defined by OBF. Ameritech July 10 *Ex Parte* at 5-6.

¹²⁴⁰ T1M1 is a standards committee under the T1 Telecommunications committee, and is a part of ATIS.

¹²⁴¹ SBC July 12 *Ex Parte*; NYNEX July 17 *Ex Parte*.